

## **REMARKS**

Claim 4 has been canceled. Claims 1, 5, 6, 11, 13, 16, 26, and 27 have been amended; however, no new matter has been introduced.

With these amendments, claims 1-3, and 5-29 are pending.

### **Specification Objections**

The Office objected to recitation of "weighted amplitude" in claim 5 when the specification lacks that recitation in the definition on page 11. Applicants have amended claim 5 to delete the term "weighted amplitude", thus obviating the rejection to the specification.

### **Claim Objections**

The Office objected to claims 26 and 27 for reciting "a the temporal adjustment". Applicants amended claims 26 and 27 to recite "the temporal adjustment", thereby obviating this objection.

### **Rejections under 35 U.S.C. § 101**

Claims 1-12 stand rejected under 35 U.S.C. § 101 for allegedly being directed to non-statutory subject matter. In particular, the Office asserts that the claimed invention "does not produce a useful, concrete and tangible result." In response, Applicants have amended claim 1 to recite the end result of the claimed method, i.e. to recite "generating a stimulus." Applicants respectfully request reconsideration and withdrawal of the rejections of claims 1-12 based on 35 U.S.C. § 101.

**Rejections under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph**

**A.** The Office asserts that claim 1 is incomplete for omitting essential steps. In particular, the Office states that the step of applying a temporal adjustment disclosed at page 11, lines 10-18 of the specification, is essential. Applicants respectfully disagree and note that the disclosed implementation is illustrative only and should not be seen as limiting the claimed method. Attention is directed to page 8, lines 10-13, and page 12, lines 15-23 of the specification, which clearly state that other types of delays may be used. In addition, Applicants have amended claim 1 to incorporate the limitations of claim 4, which describe how the temporal adjustment is derived with reference to stimuli to be applied by proximate stimulation devices. Applicants respectfully request reconsideration and withdrawal of this rejection.

**B.** The Office rejected claim 6 for the recitation of the term "Mexican-hat shape", asserting that this term is not defined by the claims or the specification. Applicants respectfully disagree and submit that an example of a function that produces a Mexican-hat shape is defined by the equation for the latency function at page 4, line 5 of the specification. Thus, one of ordinary skill in the art, with the latency function formula at hand, would understand the term Mexican-hat shape. Applicants respectfully request reconsideration and withdrawal of this rejection.

**C.** The Office rejected claims 5 for lack of antecedent basis for the limitation "the weighted sum". Applicants have amended claim 5 to recite "a weighted sum".

**D.** The Office rejected claims 5 for lack of antecedent basis for the limitation "the weighted amplitude". Applicants have amended claim 5 to recite "an amplitude".

**E.** The Office rejected claims 5 and 6 for lack of antecedent basis for the limitation "the stimuli". Applicants have amended claim 1 to recite "a plurality of stimuli". Therefore, the limitation "the stimuli" in claims 5 and 6 finds antecedent support in amended claim 1 from which claims 5 and 6 depend.

**F.** The Office rejected claim 6 for lack of antecedent basis for the limitation "the proximate device". Applicants respectfully disagree and note that the limitation "a proximate device" is recited in claim 1 from which claim 6 depends.

**G.** The Office rejected claim 6 for lack of antecedent basis for the limitation "the restriction". Applicants have amended claim 6 to recite "a restriction".

**H.** The Office rejected claim 11 for lack of antecedent basis for the limitation "the delivery". Applicants amended have claim 11 to recite "delivering".

In view of the above amendments and comments, Applicants respectfully request that the rejections based on 35 U.S.C. § 112, 2<sup>nd</sup> paragraph be reconsidered and withdrawn.

**Rejections under 35 U.S.C. § 102(e)**

**A.** Claims 1, 2, 4, 8-10, 13, 14, 16-22, 24, and 26-29 stand rejected under 35 U.S.C. § 102(e) for allegedly being anticipated by Van Hoesel (US 2004/0172101). Applicants respectfully disagree.

Applicants have amended independent claims 1, 13, and 16 to recite:

*"said temporal adjustment being derived from the amplitudes of a plurality of stimuli to be applied by proximate stimulation devices".*

Applicants respectfully submit that this feature is not disclosed or suggested by Van Hoesel reference. Van Hoesel describes a system in which sounds are divided into a number of different frequency bands, and each frequency band resulting in stimulation of an electrode of a cochlear implant at a particular time. In certain circumstances, however, there may be contention between the stimulation times of events in different frequency bands. Van Hoesel describes a way of resolving this contention by allowing lower frequency components to result in stimulation at the "correct" time, except in special circumstances (see paragraphs [0061]-[0062]). The special circumstances being when, a higher frequency component has a band peak which has an amplitude that is very large compared to the band peak of a lower frequency component. In this case the lower frequency peak is shifted to the next available time slot. Thus, Van Hoesel may actually advance, rather than delay stimulation because it may be that a free time slot exists on either one of the two sides of the desired "correct" slot in the buffer.

This is a fundamentally different arrangement to the claimed method. In the claimed method, an initial determination of the stimulation devices to be activated and their activation times is made, and then a delay is applied to these times. This delay is not based on shifting a stimulation to avoid contention as in Van Hoesel, but is a delay that is derived from the amplitudes of a plurality of stimuli to be applied by proximate stimulation devices. This is not merely a "compare and shift"

process as in Van Hoesel, but a determination of the extent of the delay based on the amplitude of signals on a plurality of proximate stimulation devices.

Moreover, Van Hoesel only implements its "compare and shift" process when there is contention between channels. The present invention is not constrained in this way and may apply the delay even when contentions do not exist. In fact the implementation of the present invention may cause "contention" that Van Hoesel is specifically trying to avoid.

The Office also stated that the claims 13, 14, 16-19, 22, 26, and 27 have been further rejected because the functional limitations are considered non-limiting. The claims have been amended to more clearly tie the use of a processor configured to perform the claimed functions.

Therefore, the claims are novel with respect to Van Hoesel.

**B.** Claims 13, 15, 23, and 25 stand rejected under 35 U.S.C. § 102(e) for allegedly being anticipated by Milojevic *et al.* (US 2005/0033377). Applicants respectfully disagree.

Milojevic describes an implantable apparatus, such as a cochlear implant, for delivering electrical plasticity informative stimuli to a neural network of an implantee. The apparatus comprises a stimulator device (40) that generates stimulation signals, and an electrode array (20) that receives the stimulation signals and delivers the stimuli to the neural network of the implantee in response to the signals. The stimuli delivered to the implantee facilitates and/or controls the production and/or release of naturally occurring agents into the neural network to influence the functionality thereof. While Milojevic discloses performing auditory stimulation, there is no

teaching or disclosure that the sound processor is configured to:

"apply a temporal adjustment to the activation times, said temporal adjustment being derived from the amplitudes of a plurality of stimuli to be applied by proximate stimulation devices, such that activation of stimulation devices representing lower-amplitude components of the signal is delayed relative to activation of a proximate device representing a higher-amplitude component of the signal",

as recited in claim 13. Therefore, claims 13, 15, 23, and 25 are novel with respect to Milojevic.

Applicants respectfully request reconsideration and withdrawal of the rejections of claims 1, 2, 4, 8-10, and 13-29 based on 35 U.S.C. § 102(e).

**Rejections under 35 U.S.C. § 103(a)**

Claims 3, 11, and 12 stand rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over Van Hoesel (US 2004/0172101) and Milojevic *et al.* (US 2005/0033377). Applicants respectfully disagree.

As discussed above, Milojevic does not disclose all the limitations of claim 1 from which 3, 11, and 12 depend. Van Hoesel does not cure these deficiencies. Therefore, claims 3, 11, and 12 are novel with respect to Van Hoesel and Milojevic.

Applicants respectfully request reconsideration and withdrawal of the rejections of these claims based on 35 U.S.C. § 103(a).

Allowance of the claims and passage of the case to issue are respectfully solicited. The Applicants urge the Examiner to contact the Applicants' undersigned representative at (312) 913-0001, if she believes that a discussion would expedite prosecution of this application.

Respectfully submitted,

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